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Learning challenges in higher education: an analysis of contradictions within open educational practice

Open education, including the use of open educational resources (OER) and the adoption of open education practice (OEP), has the potential to challenge educators to change their practice in fundamental ways. This paper forms part of a larger study focusing on higher education educators' learning from and through their engagement with OER. The first part of the study was a quantitative survey investigating educators' learning behaviour when they learned to use OER in their practice. The second part of the study explored qualitatively how educators engaged with OER and how they conceptualised their learning. Data was gathered through interviews with 30 higher education educators. This paper reports the analysis of these interviews. The analysis draws on the theory of self-regulated learning and cultural-historical activity theory (CHAT) to explore the challenges adult education practitioners encounter when changing their practice. The study tests the application of a framework that traces the discursive manifestations of contradictions, exploring how this framework can be used to examine different aspects of self-regulated learning as educators learn how to use OER. We have identified three distinct tensions in higher education educators' practice: tensions between the emerging needs of the individual (as he or she adopts new forms of practice) and organisational policies; between the transfer of responsibilities from educators to students as new practice is embedded and institutional accountability; and between cost-efficiency and learning objectives. The framework for the discursive manifestations of contradictions was a useful tool used to surface these apparent tensions.

1. Introduction

There is evidence that open education, including the use of open educational resources (OER) and the adoption of open education practice (OEP), is encouraging a shift in educational practice (Littlejohn & Pegler 2014; Masterman & Wild 2012). The Organisation for Economic Co-operation and Development (OECD) defines OER as digitised materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research (OECD 2007). Since the first major OER release project, MIT's OpenCourseWare initiative of 2001 (Livingstone-Vale & Long 2003), OER have been produced by a wide range of institutions and individuals (see Wiley, Bliss, McEvan 2014). The Cape Town Declaration (2008), a founding

document of the OER ‘movement’, suggests that OER provide the potential for educators to adopt new approaches around sharing and collective learning, and to promote new ways of thinking about content and learning opportunities in education settings.

While the term Open Educational Practice (OEP) has been variously defined (for different definitions see Cape Town Declaration 2008; Conole & Ehlers 2010), there is growing consensus that it incorporates the production, management, use and reuse of resources, as well as the construction of new pedagogies and learning activities. Open Educational Practice has the potential to empower learners as co-producers in their lifelong learning path (Conole & Ehlers 2010) and encourage educators to build and work within networks of practice (Earl and Katz 2007). New forms of professional practice are expanded through networks (Evans & Stone-Johnson 2010).

Previous studies on the use of OER suggest that while educators are slowly adopting Open Educational Practice there remains limited understanding of breadth of teaching and learning practice that OER enable. This issue may be compounded by the tendency of education-related change efforts to centre on educational content or resources, such as OER (Ehlers 2011; OPAL 2011). However, professional learning and development also requires the development of different types of knowledge, reimagining each individual’s learning practice (socio-regulative knowledge) as well as the socio-cultural context in which their practice is situated (socio-cultural knowledge) (Littlejohn & Hood 2016; Tynjälä 2013). Studies have found that the limited uptake of OER and OEP by educators is influenced by factors at both the individual level (Littlejohn & Hood 2016; Littlejohn & Pegler 2014; McAndrew, 2010) as well as the organisational/institutional level (Banzato, 2012; Beetham et al. 2012; Carey et al. 2015). This study examines these influencing factors.

This paper forms part of a larger study examining higher education educators’ learning from and through their engagement with OER (<http://www.exploerer.gu.se>). It draws on theories of self-regulation (Tynjälä 2008; Zimmerman 2000) and cultural-historical activity theory (CHAT) (Engeström 1987; Leont’ev 1978; Vygotsky 1978) to explore learning and development in work settings in which learning is not the primary objective of activity (Ellström 2011). Some exploratory studies have explored OER and OEP using the CHAT framework. There is empirical evidence of tensions between established and emerging practice (McGill et al 2010; Littlejohn et al. 2014; Falconer et al. 2016; Porter 2013) with cultural practice being realigned (Cox 2016). These studies point to a need for new professional development practice to address emergent opportunities afforded by OER (Porter 2013). This study fills this gap in the literature, both empirically and methodologically, building upon prior work while examining in greater detail the dialogue around emerging forms of professional practice.

The analysis is guided by the following questions:

- (1) What tensions are experienced by higher education educators as they adopt Open Educational Practice?
- (2) Can the conceptual framework of ‘discursive manifestations of contradictions’ be used to analyse aspects of self-regulated learning related to Open Educational Practice?

First, the paper explores how CHAT can enrich understandings of educators' engagement with OER and adoption of OEP. The paper firstly explores the tensions higher education practitioners encounter in their work. By analysing the contradictions expressed by educators at the individual (action) level as they adopt new forms of practice, we also identify the foundations of tensions and challenges experienced by professionals at the socio-cultural level. In this framework practitioners' individual actions accomplish education activity which object is students and their learning. Second the study contributes to the broader understanding of the evolution of OEP, focusing on how educators learn this evolving practice. Through the use of Engeström's and Sannino's (2011) conceptual framework for analysing contradictions and how these tensions are manifest, we test whether and how the framework can be applied to examine each professional's self-regulated learning.

2. Theories of learning

The pace of social, economic and technological change has resulted in an urgent need for continued professional development and learning at work. As organisations try to strengthen and reconceptualise professional learning, there is a requirement to measure and evaluate these new and developing approaches. Hager (2011) has identified three groups of work-related learning theories that are useful in this fast-developing context. The first group includes theories from psychology (Argyris and Schön 1974) that place primacy on individual learners and their acquisition of skills for work. More recently this group has included theories of self-regulated learning (Zimmermann 2000; Pintrich 2000). The second group includes socio-cultural theories (and cultural-historical theories) (Engeström 1987; Lave & Wenger 1991; Vygotsky 1978), which are strongly influenced by cultural psychology, sociology and social anthropology. These theories emphasise that social, cultural and organisational factors shape learning and consequently extend beyond each individual as a unit of analysis (Hager 2011). The third set includes postmodern theories (Gherardi & Nicolini 2000) that conceptualise learning as an ongoing process, characterized by temporal change and continual adaptation.

This paper draws on the tradition of socio-cultural and cultural-historical theories. It links the psychological theory of self-regulated learning (Zimmermann 2000) together with CHAT (Engeström 1987) to analyse higher education educators' learning and development around OER and OEP in the context of their changing work environments. In this sense the analysis takes both an individual (psychological) and socio-cultural perspective.

2.1. Self-regulated learning

Self-regulated learning, and in particular the ability to intentionally adopt learning behaviours, is crucial for supporting change in work practice and professional development (Littlejohn & Hood 2016; Zimmermann 2000; Tynjälä 2008). The concept of self-regulation refers to 'self-generated thoughts, feelings and actions that are planned and cyclically adapted to the attainment of personal goals' (Zimmerman 2000). An individual's self-regulative behaviour, however, is not static, and may vary in accordance with changing personal and contextual factors. Feelings of confidence or

opportunities to collaborate with others, for example, may motivate people to participate in learning situations and activities that support their professional practice (Pintrich 2000).

Sitzmann and Ely (2011) suggest that, while theories of self-regulated learning primarily have been developed in formal educational settings, self-regulation has stronger effects in less formalised and structured settings, including workplaces. In these contexts individuals have to take responsibility for their own learning. Hood and Littlejohn (in press) examined how an educator's ability to self-regulate their learning together with their workplace context influences their ability to learn from involvement with OER. The study indicated that in changing education practice both personal and contextual factors are important in supporting educators' workplace learning. Additional studies of self-regulated learning in various work settings have further identified the importance of workplace context in shaping educators' learning behaviour (van Eekelen, Vermunt, & Boshuizen 2005; Sitzman & Ely 2011).

2.2. Cultural-historical activity theory

Cultural-historical activity theory conceptualises human activity as object-oriented, mediated, collective and social (Engeström 1987; Leont'ev 1978; Vygotsky 1978). Leont'ev (1978) encapsulated his thinking in a three-level hierarchy of activity model: (1) routine actions carried out within a specific context; (2) short-term practical actions conducted by individuals or a group of individuals to fulfil a set of goals; and (3) long-term motive-driven activity. Leont'ev crystallised his ideas through analysis of a primeval collective hunt (activity). He specifically examined an individual beater's participation (action) in the hunt in order to fulfil a need for food or clothing. The beater's actions may be focused on frightening the herd of animals to trigger their movement toward a group of hiding hunters. Thus the beater's actions support hunting, rather than being directly involved in the hunt (the object of the activity). 'Routines' are a set of automated actions, for example, the use of hunting tools during a hunt. Leont'ev's theory suggests that when studying psychological processes (individuals' interpretations of phenomena or their motives), the analysis cannot be isolated from social relations and societal life (Leont'ev 1978). A framework is needed to support analysis of individual actions within the social context.

2.2.1. A dialectical theory

The Cultural historical Activity Theory (CHAT) framework provides a powerful means of analysing work and learning, particularly in context of organisational transformation. As a 'dialectical' theory, it views human relationships as interwoven with multiple contradictions, and conceptualises learning as a dynamic and non-linear process. A dialectical theory is underpinned by the notion of a 'dialectical contradiction', which is comprised of inherently opposing elements, is systemic and historically evolving. Contradiction is positioned as a driving force for change and transformation (Il'enkov 1977), and enables a new object of activity to be identified and new activity conceptualised. Consequently, the concepts of the 'contradiction' and the 'object' have

been a central focal point of a number of studies inspired by CHAT (Engeström & Sannino 2011; Martínez-Roldán 2015; Pereira Querol 2011; Vainio 2012).

Discursive manifestations of contradictions

Contradiction is a broad and vague term, often used to describe different kinds of tensions and problems (Engeström & Sannino 2011). In dialectic theory, ‘contradiction’ has a specific meaning, associated with the multiple contradictions within human relationships. Contradictions cannot be directly observed and empirically analysed, however, they can be traced through the ways they appear in practice. Linguistically expressed ‘manifestations of contradictions’ are evidenced through patterns of discussion in which individuals try to make sense of, to transform and/or resolve these contradictions (Engeström 1999). Therefore, analysing contradictions in the context of change and emerging practice can enhance our understanding of the sorts of action-level tensions experienced in day-to-day action. Furthermore, the analysis of contradictions relates these action-level tensions to practitioners’ longer-term activity and the wider context in which the activity is situated.

Engeström and Sannino (2011) argue that the theoretical explanation of the concept of contradiction, as well as ways contradictions are operationalised, often remains unclear. To fill this gap they developed a framework for the analysis of four types of manifestations of contradictions: dilemmas; conflicts; critical conflicts; and double binds.

Dilemmas are defined as ‘expressions of incompatible evaluation’ which appear in discourse as contrary themes. The sorts of linguistic cues that signal dilemmas include ‘on one hand, on the other hand’, and ‘yes, but’. Dilemmas are sometimes reproduced with help of denial and repetition, rather than being resolved through the narrative. For example, ‘I didn’t mean that’, ‘I actually meant’ refer to repetition, rather than solution of the expressed dilemma.

Conflicts typically appear in the form of resistance, disagreement, argument or criticism, and are commonly indicated by negative expressions such as ‘no’, ‘I disagree’ and ‘this is not true’. Resolution of conflicts includes finding a compromise or submitting to the situation dominated by authorities or majority.

Critical conflicts express various types of experiences including the feeling of helplessness caused by contradictory motives experienced by different people. Critical conflicts typically involve feelings of guilt and violation. Resolution of critical conflicts occurs by negotiating a new meaning of the original situation.

Double binds are situations in which actors repeatedly encounter equally unacceptable alternatives or impossible situations, which call for urgent collective actions to be resolved. Rhetorical questions and the use of the first person plural (we), indicate double binds. The resolution of double binds requires collective action.

This study examines tensions experienced by higher education educators as they learn Open Educational Practice. This work tests the usefulness of the framework of ‘discursive manifestations of contradictions’ to analyse how educators self-regulate their learning of OEP. The analysis includes educators’ accounts of how they use OER and other types of online resources as well as

their descriptions of their organizational settings, such as distance or blended learning environments. The intention is to avoid an analysis disconnected from the educators' context of teaching and learning. The reason we adopted this approach to the analysis is because we observed that the educators had different ideas of the definition and purpose of OER. These varying definitions are mirrored in the OER or 'open' literature, in which there is no consistently agreed upon definition of the terms (Wiley, Bliss, & McEvan 2014).

3. Methodology

The first phase of the study involved a quantitative survey of adult educators' learning behaviours as they learned to use OER. Data were gathered using a modified version of a validated instrument for measuring self-regulated learning in the workplace (Fontana et al. 2015). The survey instrument is comprised of three scales. The first scale asks educators about their current engagement with OER. The second scale measures the influence of educators' workplace context on their learning, and the final scale measures educators' ability to self-regulate their professional learning when engaging with OER.

The survey was distributed widely in February 2015 via email lists and social media sites. 521 adult educators from across Europe responded to the survey. The sample comprised of 323 female and 198 male respondents. 468 were university level educators, 19 school educators, 7 vocational educators, 16 company or professional trainers, 5 lifelong learning facilitators, 3 community educators and 3 voluntary or third sector trainers. Experimental factor analysis identified six factors of self-regulated learning in relation to OER use: experimenting in practice, planning and goal setting, self-efficacy, self reflection, interaction with others and learning value (Hood & Littlejohn in press).

Survey participants were invited to volunteer to participate in an interview examining how they learned Open Educational Practice. A total of 30 educators, from eight countries, were interviewed to explore in detail how they engaged with OER and how they conceptualised their learning. A semi-structured interview instrument was designed to probe five areas: (1) the context of OER use; (2) the role OER play in professional learning; (3) the use of OER in practice; (4) exploration of specific examples of OER use. Interviews were conducted via phone or Skype in March and April 2015. These interviews were audio recorded and transcribed verbatim.

The interview transcripts were imported into the qualitative data analysis tool Atlas.ti. The data were categorised into the six sub-factors of self-regulation of learning that had previously been identified (Hood & Littlejohn in press). To extend beyond descriptive categories, a linguistic-thematic analysis of the discursive manifestations of contradictions was carried out (Engeström & Sannino 2011).

4. Findings

This section presents an outline of the quantitative examination of the data. This overview is followed by a qualitative exploration of the discursive manifestations of contradictions.

4.1. Quantitative findings

Quantitative distribution of the sub-factors of self-regulated learning

There was a total of 631 quotations in the data related to six specific sub-factors of self-regulated learning known to influence professional learning. The number of quotations associated with each factor reveals the frequency with which educators discussed each of the themes related to the six sub-factors. Experimenting in practice (160) was the factor that was most frequently mentioned. When discussing how they experimented, the educators described general educational practice as well as activities specifically related to the use of OER. Self-efficacy (114), self-reflection (115) and interaction with others (105) were sub-factors within the middle-range of frequency of discussion. Planning and goal setting (60) and learning value (77) were the least frequently discussed sub-factors. Where quotations equally represented two sub-factors, these were coded into both categories.

Quantitative findings of dilemmas, conflicts, critical conflicts and double binds

Quantitative analysis of the data identified 105 dilemmas, 43 conflicts, 15 critical conflicts and 9 double binds. Table 1 presents the distribution of the coded quotations of the sub-factors of self-regulated learning.

Table 1

The distribution of coded quotations of the sub-factors of self-regulated learning

	Dilemma (quotations)	Conflict (quotations)	Critical conflict (quotations)	Double bind (quotations)	Total
Experimenting in practice	23	12	5	3	43
Interaction with others	16	8	2	3	29
Learning value	9	4	3	1	17
Planning and goal setting	13	4	-	-	17
Self-efficacy	30	9	5	1	45
Self-reflection	14	6	-	1	21

Total	105	43	15	9	172
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Manifestations of contradictions were identified across the data and expressed by all 30 of the educators. This suggests that the dilemmas, conflicts, critical conflicts and double binds were not accidental. Table 2 summarises the distribution of the number of educators who expressed contradictions related to each of the sub-factors of self-regulated learning.

Table 2

The Distribution of the number of higher education educators expressing contradictions related to each sub-factor of self regulated learning

	Dilemma (27)	Conflict (20)	Critical conflict (12)	Double bind (7)	Total
Experimenting in practice	10	7	5	3	25
Interaction with others	14	5	2	3	24
Learning value	7	2	3	1	13
Planning and goal setting	9	4	-	-	13
Self-efficacy	10	9	3	1	23
Self-reflection	13	9	-	1	23
In brackets is the total number of higher education educators who expressed manifestations of contradictions					

4.2. Qualitative findings of dilemmas, conflicts, critical conflicts and double binds

This section presents the qualitative analysis of these contradictions. We have purposefully selected data excerpts to illustrate each manifestation of a contradiction. Each quote selected had to illustrate the thematic content and linguistic cues of each contradiction.

Dilemmas

Analysis of dialogue around how educators experiment in practice revealed dilemmas and uncertainty about how to align existing teaching with opportunities for new forms of practice offered through OER. In the following excerpt, the educator explains how the development of

technical tools as well as the increasing availability of OER have resulted in his increased engagement with OER. He then reflects on an increase in his use of conventional learning resources.

So I suppose those are the kinds of reasons that I would do this [use OER] more now. I mean, now we have better online networking facilities, the connections are better, the resources, well there's some more out there. So I suppose these are reasons why we'd use it more than before. But by the same token I do find that I also use traditional journals and books more than before.

Although this quotation does not identify a specific problem or challenge, it reveals how the educator's practice has evolved dynamically in response to his use of OER. Learning to use OER is not a linear trajectory from limited to high use, and can support, and be supplemented by, the use of physical, non digital, teaching resources.

This non-linear trajectory of professional development is also apparent in educators' discussions of their planning and goal setting. One educator described the need occasionally to use alternative educational resources when teaching concepts that students found demanding. This need to source additional educational resources appears to have initiated his use of OER.

You know sometimes you want to step back and you need something a bit simpler, I haven't done that, but maybe it's an area that I might do, particularly with my group of students at the moment (...) sometimes it is useful to refer to a different explanation of what they're trying to get at, (...)] I mean [name of the organisation]'s material is excellent, but sometimes it's so tight and so specific you think well you need to take a step back from it and use other resources to explain something to them. Because unlike other undergraduates in traditional institutions they're not just given the book list to go off and explore it themselves, they're given very specific things to do and it's very narrow.

This example does not reveal problems or challenges in planning and goal setting. Rather, it shows that the educator had found a potential solution to a problem he had identified when supporting students' learning. The limited teaching and learning material he and the learners had access to within his institution represents the initial challenge that triggered his change in practice.

Dilemmatic talk also emerged in relation to educators' self-efficiency and to self-reflection. In one example an educator describes being confident in locating OER and reflects on how her use of OER has prompted continued learning.

I find it quite easy. (...) I mean I'm quite aware that once you start digging you realise how little you know and it changes all the time (...). But that's quite exciting as well. So I think, yeah there's a lot more to learn, but there isn't really, it's not like a 6th skill you can learn anyway, it's all about the ability to be flexible and kind of give it a whirl and try things out and to be inquisitive and always have a critical mind because there's a lot of crappy stuff out there as well. (...) So I think I've become more digitally literate as well, but it's so hard to keep up because personally, (...) So you

feel like you're learning, but you're always behind. I don't know, I think I have changed and I have tried to be more adventurous, but at the same time I think my fundamental approach I think is not terribly different because the thing is I would have done the same in the past (...), it's just you have to translate these skills to a different medium and the fact that, in terms of the wealth of material and the lack of editorship means that you have to be a lot more critical.

This example of dilemmatic talk reveals four diverse themes. Firstly, the dynamic character of learning practice. The educator was constantly traversing between being a self-assured educator, yet at times being a reticent user of OER; sometimes learning new open educational practice when engaging with OER and at other times not. This suggests that professional development should be conceived of as a dynamic process through which practitioners move backwards and forward, altering their practice in relation to the contextual and subjective factors that influence their work. Secondly, this educator demonstrates a fine balance between resolving and reproducing the challenge. While new challenges were meaningful and *'quite exciting'*, the reflection of being *'always behind'* meant that problems were continually recurring. Thirdly, the quote outlines the tension between the continuities and differences between OER and traditional educational resources. By reflecting on her expertise as a practitioner, she could transfer some conventional educational practice to the use of OER. At the same time she recognised that she constantly needed to critically appraise her practice. This suggests that the transfer of conventional practice to networked environments may inhibit the expansion of OEP. Fourthly, demands to be more critical because of the lack of editorship signal the transfer of responsibilities in quality assurance to the educator. A number of studies have discussed the challenges of quality assurance of OER and OEP (see Porter 2013). Employees' perceptions of responsibility and flexibility often are related to greater efficiency, empowerment and the good quality of services. However, these may also be conceptualised as part neo-liberal discourse (Emery & Giaque 2003), as from the employees' perspective, flexibility can also mean undesirable insecurity at work (Fairclough 2000) and increasing responsibility.

Problems and uncertainty in relation to evaluating OER was one of the most frequently occurring themes and was expressed by fourteen educators. The following example of dilemmatic talk illustrates features of self-efficacy in relation to quality assurance.

I still go into a traditional university and I love going into a library because the library is a finite resource (...) you know where the shelves are and there'll be a certain number of books on that subject. The internet isn't like that and the problem is it's the quality control that we've talked about, it's knowing is this really useful? Is this secondary? Is this tangential? Sometimes I'll deliberately find some red herrings, particularly if we're looking at philosophical type subjects to throw them off. But it is hard to know, what's the best way of putting it? I guess I just learn from experience.

The educator was not confident in evaluating the quality of OER. Ten participants discussed the challenge of OER quality control. However, two educators considered that there is *'more quality in*

OER than there are in other resources' and that OER are 'true and accurate and very helpful'. In all cases, the responsibility for quality control was considered to lie with the educator. Two interviewees described their role as 'editors' or peer reviewers. In the quote above, however, the educator explained how he would 'deliberately find some red herrings' and could turn the issue of poor quality OER into a learning opportunity.

Conflicts

Conflicts tended to focus on arguments for not using OER in certain contexts, focusing on the difficulties experienced when using OER in distance learning environments. These conflicts were mainly experienced at a personal level, and there was a tendency for educators not to solve the conflict.

The following quotation shows how new educational practice is shaped, in part, by the network within which an educator is situated and their context of practice. The educator explains having previously used a number of online resources when participating in a related project. However, her use of online resources decreased after the project finished.

I guess it's one of those if you have a bank of useful things that other people have recommended and I know logically there's loads of ways to do that, whether that's using link sharing things like Diigo or Delicious or that type of stuff, but to be honest I don't end up doing them. I started using them briefly at one particular time, when I was working with people because I was doing a particular project that involved doing that, so therefore you were encouraged to and there was a reason to. But once you stop doing that, unless you can see a lasting reason to carry on and you have other people who do it and encourage you, you stop doing it. So I would probably need to have the impetus and have the network that used something in order to keep doing it. Because in some ways it was quite useful and I did for a while collaboratively use or collaboratively recommend resources, but I then stopped.

This example shows the importance of collaboration and support from colleagues for sustained use of online resources. The adoption of new practice is influenced by previous experience, as well as being shaped by context and involvement with a network of educators. Further, the excerpt shows that the motivation to use or continue using these resources can sometimes be found 'outside' rather than 'inside' individuals. While the educator suggested a solution to the problem of not using OER, it remained unresolved at a personal level. The importance of collaboration and interacting with others was identified by thirteen participants. Some discussed challenges relating specifically to collaboration in virtual learning environments while others found collaborating online to be easier than in traditional classroom environments. Tension between collective learning and individual learning emerged from educators' accounts as well as the challenge of maintaining and increasing interaction in virtual learning environments.

Critical conflicts

The critical conflicts discussed by the educators mainly focused on frustration and nervousness arising from the limited opportunities for their own professional development, difficulties employing OER, and challenges associated with working in online and distance learning environments. These critical conflicts were personal; however, they required solutions at an organisational rather than an individual level. Consequently, most conflicts were not resolved and were not given a new meaning or interpretation, which would have facilitated new learning and development.

One example of critical conflicts was related to the sub-factors of learning value and self-reflection. An educator described how her participation in professional development in her workplace did not improve her own learning.

I am part of this continuing professional development thing that happens and I actually opted to do it, again because it's about doing my job properly, I have to know what I'm doing. But I haven't found that particularly helpful because my experiences, and again this is absolutely not a negative comment either about myself or the [name of the organisation], is that I'm more critical of myself than [name of the organisation] is. They seem to think I'm doing a good job, which is very nice, thank you very much, but it doesn't actually teach me anything.

In this example, the educator felt frustrated and appeared to submit to authority rather than negotiate a new meaning of the situation she had experienced. This suggests a tension between the organisational objectives expressed in professional development programmes and an individual's needs and aims.

Double binds

The double-binds identified in this study were related to larger organisational, structural and societal tensions. Three specific examples are explored below.

One example of this type of double bind relates to educators' interactions with others and the challenges related to participating in informal networks and poor systematic organisation. One educator points to the poor coordination of sharing practice. He and two others explain how training is removed from professional practice. The educator's use of the pronoun 'we' implies that collective action is needed to solve the structural problem he observed:

I mean one of our big problems is that everything is working on informal networks, so the wheel is being reinvented again and again and. I think we have a structural problem in thinking about professional development here because one of the only ways we have here in [name of the country] is to have Conferences and send people away and have Webinars in strange times and that sort of thing. Now we who are practitioners in the field a) we don't have time to go to these things and b) that's not really where our focus is! One of the things about OER you are working on just in time satiation all the time so it's very difficult to say what my need is going to be should we say in the autumn as it is the needs now that is the thing, and because we

have this wealth of OER we are using it and doing it and spreading it round our informal networks, very little coordination in general.

This quote illustrates a disjunct between the structure and content of current formal professional development offerings and educators' needs. There also is a lack of systemic coordination in both formal professional development forums and informal networks. This may result from a tension between the objectives of institutions and the personal aims and strategies of individual practitioners.

A second example of a double bind relates to educators' experimentation in practice. One educator described difficulties with publishing in relation to the organisation she worked for, posing several rhetorical questions.

At the moment if I do a paper, despite the fact I have a PhD and stuff, but because of an affiliated institution, [name of the organisation] - they will say you are not a researcher with [name of the organisation] so you can't publish with [name of the organisation] like - so where do I sit! So for me it would be, how do we make use of the resources, Open Learning and [name of the organisation] is at the forefront of that! How do we make sure it's not just more information but we actually transform that into meaningful knowledge!

This quote reveals how the rules and regulations that govern organisations may inhibit the development of innovative practice as well as novel forms of professional development that could support new ways of working. This double bind leads to frustration, resulting in tensions between organisational priorities and individual needs.

The third example of a double bind is related to self-reflective practice. The educator reflected on his use of digital material and OER, arguing that the organisation where he works was 'confused' and did not know what it was doing when implementing the use of online resources and digital material.

I think the [name of the organisation] is confused about what it wants. Live lessons and indeed what it wants these materials to do. (...) I don't think we really know why we're doing it. I think we know that to cut costs and because we're to make it as easy as possible for students to pass without actually doing anything if possible, (...) we are doing this because we're frightened to stop. You know we feel there's something about the learning experience that should have some kind of face to face or live element to it. Now I think that's absolutely true and I now only have two face to face sessions with my tutor group in [name of the course] and in the other two I have none because they're national. But I don't really think we know why we're doing it.

This quote illustrates a double bind that is both workplace-specific and related to virtual learning environments more generally. Two participants, including this educator, described a double bind associated with virtual learning environments. Virtual learning environments had been introduced to reduce costs, underpinned by the argument that distance learning may cost less than classroom

teaching. In our data, however, seventeen of the higher education educators who discussed virtual learning environments emphasised the benefits of face-to-face learning. There was a tension between perception of costly classroom-based teaching, characterised by the benefits of face-to-face interaction, and cost-efficient approaches to teaching through online learning, which reduce the opportunities for face-to-face interaction among educators and learners. The educator's perception aligns with the value of efficiency which is inherent in the neo-liberal reform programmes and initiatives that aim to provide better services for customers (Emery & Giauque 2003), in educational context learner customers. His perception may or may not be correct, but there is evidence that argumentations for and 'results' of cost-efficient methods may remain unchallenged (Hood & Dixon 2013).

This last quote, *'possible for students to pass without actually doing anything if possible'* signals that students can be passive in some learning environments. Seven of the thirty participants, however, described a movement toward teaching and learning methods that emphasise students' autonomy. One of the educators explained: *'So quite a lot of people thought there was some virtue in students being a bit more autonomous, a bit more responsible for their own learning, which means transferring to them some of the responsibility for finding suitable things. There are complications doing that, but I think that's part of it'*. This trajectory is in line with learning theories that emphasise students' autonomous learning practice (Moore 1973). However, as the quote illustrates, there are concerns around this trend and the associated changes.

5. Discussion

Becoming a confident practitioner and OER user, similarly to other professional learning and development, is not a linear trajectory from novice to expert (Engeström & Sannino 2010). Ideally professional learning should be conceived as a dynamic process through which practitioners move backwards and forwards, altering their practice in relation to the contextual and subjective factors that influence their work. Obstacles that inhibit educators' professional learning can arise when practitioners engage in formal training, but are not able to transfer the content or conditions offered by the course into their own practice. An inability to negotiate new meaning associated with their personal experiences can impede their learning.

This study suggests that educators tend to transfer conventional teaching practice to networked environments – within or between organisations and contexts – thereby impeding how they learn Open Educational Practice. As a result of this replication of practice, educators limit their ability to exploit the potential offered by OER. Educators' actions and behavior are shaped by several competing forces. Open practice conflicts with conventional educational practice, and previous expertise and practice tend to influence new learning and development. Changes to practice are also shaped by the contexts in which educators work and the networks they are situated within. Challenges arise when networks do not change as practice evolves (Evans & Stone-Johnson 2010) or where contexts do not support new learning and experimentation in practice.

There are often tensions between old and new practice. Where there are fundamental changes in practice (from conventional teaching to OEP) and the tools being used (from traditional learning resources to OER), approaches to organisational change management become critically important.

The findings also suggest that there is often a mismatch between practitioners' experiences, and institutional practice and structures. This problem may be acute where the distance between the educators and management staff is high, or where the objectives of the organisation do not appear to align with Open Educational Practice. Organisations may create dynamic work environments that enable educators' continued learning to be embedded within and responsive to their practice-based needs by implementing bottom up methods to support the implementation of new forms of practice (Engeström & Sannino 2010).

The tensions and obstacles identified through this analysis are part of a dynamic learning practice which (optimally) can be altered to align with future practice and contexts (Engeström 2007). The findings suggest that tensions in educational practice can, in certain circumstances, trigger desirable changes, such as, using OER or developing new practice, such as Open Educational Practice. For this to happen educators need to learn socio-regulative knowledge and socio-cultural knowledge to help them interpret 'old' and 'new' experiences, and to transform their knowledge and align it with new practice (Littlejohn & Pegler 2014; Tynjälä 2013).

6. Conclusions

This study tested Engeström's and Sannino's (2011) framework as a tool for studying the manifestations of contradictions as educators' practice evolves. The method is a useful way to surface tensions as higher education educators' learn Open Educational Practice at the individual, network, and institutional level. The biggest challenge during the analysis was linking the four types of contradictions identified to the solutions described by the educators. A number of dilemmas, for instance, were solved, indicating that educators often re-interpreted the dilemmatic situations they were in. They often described how they would approach these situations in the future, illustrating their professional development.

The analysis revealed different types of contradictions in educators' practice. Dilemmas were often related to OER activity and educators' day-to-day practice. Half of the educators described how they solved challenges experienced in practice, illustrating the dynamic nature of professional learning and change in practice. The analysis of conflicts and critical conflicts uncovered a range of work-related problems. By contrast the analysis of double binds surfaced larger structural problems affecting higher education educators' work. All together these findings suggest that dilemmatic discussion may signal situations where practitioners either need more support or require practice to be reorganised to circumvent the evolution of work-related tensions.

The study suggests there are three types of tensions related to educators' practice and OER. These tensions are directly aligned with educators' practice and professional development, but can also be linked with wider, societal factors related to the field of education. Tensions identified were between: 1) individual needs and organisational policies and rules; 2) transfer of responsibility to higher education educators and learners and institutional responsibility; and 3) cost-efficiency and learning objectives.

The tensions between individual needs and organisational policies suggest that the development of professional practice is influenced, in part, by organisational constraints. Simultaneous changes to both organisational and an individual practice is needed. Further, tensions between individual and institutional responsibilities link with the current neo-liberal emphasis on individualism (du Gay 1996). Researchers across diverse domains have identified problems associated with this sort of individuality in working life, public services and education from the various perspectives of citizens, employees, and students (e.g. Clarke & Newman 2007; du Gay 1996; Little 2007; Richter & Cornford 2007). A key problem is that this individual emphasis can challenge the advantages associated with collective learning and can undermine the quality of working life (Kalliola & Nakari 2006). The tension between cost-efficiency and learning objectives is also associated with neo-liberal reforms and wider issues in educational policies and society. The notion of 'efficiency' is associated with 'budget cuts' and 'contracting out', which are principles of neo-liberal reform (Gruering 2001). Financial efficiency may be achieved through employing educators on a contractual basis, but does not necessarily produce better quality teaching and learning.

As with all research, this study has a number of limitations. First, the use of thematic categorisation as a method of analysis can be problematic, due to the tendency to simplify intertwined narratives and themes. To resolve this issue categorisation was used to structure the data prior to in-depth discursive analysis. Second, the method of discursive manifestations of contradictions was originally developed for organisational interventions and group discussions and required modification to analyse retrospective interview data. In real-time interventions discussion is more vivid and participants are likely to express stronger emotions than in interviews (Vainio 2012, 139). Third, the approaches of self-regulated learning and CHAT were combined in this study in a technical way; therefore dialogue between the approaches may be limited. Fourth, since the interviewees represent different organisations and different countries, this analysis is to some extent decontextualised. Therefore, an in-depth historical analysis (Engeström 1987) is needed to analyse and explain theoretically the contradictions underlying the identified tensions.

Despite the limitations, the CHAT framework gives new insights to studies on OER and OEP by opening up the dynamics and learning challenges inherent in higher education educators' practice. Future research now is needed to conceptualise the evolving new form of activity and the possibilities it provides to educators. This could include organisational interventions or focus group discussions and in-depth historical analyses in specific higher education organisations.

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